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Applicant:	Jacobus Cornelis Haartsen	§	Group Art Unit:	Unknown
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Serial No:	Unknown	§	Examiner:	Unknown
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Filed:	April 26, 2006	§		
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For: Multiple Access Interference Cancellation

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Date: April 27, 2006

Name: Melissa Wingo

Signature: Melissa Wingo

Dear Sir:

PRELIMINARY AMENDMENT

Please amend the application as follows prior to the substantive examination thereof:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 7 of this paper.

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A method of interference cancellation in radio communication signals received by a radio access unit of a radio communication system, said radio access unit comprising receiver means and antenna means, said antenna means having a plurality of directionally separated antenna elements for adaptively receiving radio communication signals transmitted by a plurality of remote radio communication units, said method comprising the steps of:

a) obtaining radio signals received by each of said antenna elements;

b) determining first weighing factors for optimally selecting radio signals of a first radio communication unit among said radio signals obtained in step a) ;

c) weighing said radio signals obtained in step a) by said first weighing factors providing a first radio signal of said first radio communication unit;

d) determining second weighing factors for optimally selecting radio signals of a second radio communication unit among said radio signals obtained in step a) ;

e) weighing said radio signals obtained in step a) by said second weighing factors providing a second radio signal of said second radio communication unit ;

f) subtracting from said second radio signal provided in step e) said first radio signal provided in step c) weighed by said second weighing factors, providing a corrected second radio signal, and

g) repeating steps d) to f) for a further radio communication unit by determining further weighing factors, providing a further radio signal of said further radio communication unit and providing a corrected further radio signal by each time subtracting from said further radio signal said previously obtained corrected radio signals weighed by said further weighing factors, till a stop criterion ~~criterium~~ has been satisfied.

2. (Currently Amended) The [[A]] method according to Claim 1, wherein said weighing factors are obtained by forming conceptual antenna patterns with said plurality of directionally separated antenna elements.

3. (Currently Amended) The [[A]] method according to Claim 2 ~~any of the previous claims~~, wherein said weighing factors are selected for optimally selecting radio signals of a respective radio communication unit and for optimally suppressing radio signals corresponding to any other radio communication unit.

4. (Currently Amended) The [[A]] method according to Claim 1 ~~any of the previous claims~~, wherein said radio signals obtained in step a) are ordered from strongest to weakest according to receive signal strength, and wherein said first, second and further radio communication units are selected in descending order of receive signal strength.

5. (Currently Amended) The [[A]] method according to Claim 1 ~~any of the previous claims~~, wherein said first, second and further corrected radio signals are demodulated into first, second and further demodulated signals, respectively, and stored in storage means, and wherein for providing said corrected radio signals said demodulated signals are reconstructed into corresponding radio signals.

6. (Currently Amended) The [[A]] method according to Claim 3 ~~any of the Claims 3, 4 or 5 dependent on Claim 3~~, wherein said criterion ~~criterium~~ includes stopping of step g) once a corrected radio signal has been provided corresponding to a radio communication unit of interest.

7. (Currently Amended) The [[A]] method according to Claim 1 ~~any of the Claims 1,2, 3,4 or 5~~, wherein said stop criterion ~~criterium~~ includes repetition of step g) for said first, second and further radio communication units till said interference cancellation in said first, second and further radio signals between successive repetitions of step g) drops below a set value.

8. (Currently Amended) The [[A]] method according to Claim 1 ~~any of the Claims 1,2, 3,4, 5 or 7~~, wherein said stop criterion ~~criterium~~ includes repetition of step g) for said first, second and further radio communication units during a set time period.

9. (Currently Amended) The [[A]] method according to Claim 1 ~~any of the previous claims~~, wherein said radio signals obtained in step a) are digitized and said steps b) to d) are performed in the digital domain by digital signal processing means.

10. (Currently Amended) The [[A]] method according to Claim 1 ~~any of the previous claims, dependent on Claim 5~~, wherein said demodulation and reconstruction are performed in the digital domain by digital signal processing means.

11. (Original) A signal processing device for interference cancellation in radio communication signals received by a radio access unit of a radio communication system, said radio access unit comprising receiver means and antenna means, said antenna means having a plurality of directionally separated antenna elements for adaptively receiving radio communication signals transmitted by a plurality of remote radio communication units, said device comprising:

- means for storing radio signals received by each of said antenna elements;
- means for determining respective weighing factors for optimally selecting radio signals of a respective radio communication unit among said stored radio signals;
- means for weighing said stored radio signals by said respective weighing factors for providing a respective radio signal of said respective radio communication unit; and
- means for subtracting from said respective radio signal previously determined corrected radio signals of radio communication units weighed by said respective weighing factors, for providing a corrected respective radio signal.

12. (Currently Amended) The [[A]] device according to Claim 11, wherein said means for determining respective weighing factors are arranged for forming conceptual antenna patterns with said plurality of directionally separated antenna elements.

13. (Currently Amended) The [[A]] device according to Claim 11 ~~or 12~~, wherein said means for determining said respective weighing factors are arranged for optimally selecting radio signals of a respective radio communication unit and for optimally suppressing radio signals corresponding to any other radio communication unit.

14. (Currently Amended) The [[A]] device according to Claim 11 ~~11,12 or 13~~, further comprising means for measuring signal strength of said stored radio signals, and means for ordering stored radio signals from strongest to weakest according to receive signal strength, and control means for processing said ordered radio signals in descending order of receive signal strength.

15. (Currently Amended) The [[A]] device according to Claim 11~~,12, 13 or 14~~, comprising

means for demodulating said respective corrected radio signals,

further means for storing said demodulated signals, and

means for reconstructing said demodulated signals providing corrected radio signals for weighing by said weighing means.

16. (Currently Amended) The [[A]] device according to Claim 11 ~~any of the Claims 11,12, 13,14 or 15~~, comprising

means arranged for stopping signal processing in accordance with a stopping criterion ~~criterium~~ including any of stopping said signal processing: [[-]]

once a corrected radio signal corresponding to a radio communication unit of interest has been provided ~~corresponding to a radio communication unit of interest, till~~

until said interference cancellation,

between successive repetitions of providing a corrected respective radio signal,

said signal processing drops below a set value, or [[-]]

after a set time period lapses ~~lapsed~~.

17. (Currently Amended) The [[A]] device according to Claim 11 ~~any of the Claims 11,12, 13,14, 15 or 16~~, comprising

analog to digital conversion means for digitizing said stored radio signals, ~~and~~ wherein said processing means are digital signal processing means.

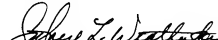
18. (Currently Amended) The [[A]] device according to Claim 15 ~~any of the Claims 15,16 or 17, dependent on Claim 15,~~ wherein said demodulation means and reconstruction means are implemented in the digital domain by digital signal processing means.

19. – 20. (Canceled)

REMARKS

Claims 1-18 remain in this application. Applicant respectfully submits no new matter has been added. Favorable consideration of the pending claims is respectfully requested.

Respectfully submitted,



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